Developing a Geomorphic Typology to Guide Regional Shoreline Restoration Planning on Puget Sound

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Puget Sound contains over 2500 miles (4000 kms) of diverse coastline that includes rocky shores, bluffs, barrier beaches, lagoons, estuaries, and river deltas. This diversity reflects the complexity of the inherited topography, the heterogeneity of coastal sediment and geology, and the large local variability in the relative influence of fluvial, tidal, and wave-driven processes. Each of these geomorphological settings is the product of distinct geomorphic processes and each hosts a characteristic suite of ecological processes. In developing a regional restoration strategy, we recognize the need for a geomorphological framework that could describe most of the Puget Sound shoreline and that would inform linkages between nearshore landscape structure and ecosystem processes. To accomplish this, we propose a typology that is hierarchical, geomorphological, and that emphasizes the importance of natural processes in shaping and maintaining coastal ecosystems. This typology becomes a conceptual framework that will help guide numerous specific tasks, including 1) characterization and assessment of shoreline conditions, 2) regional-scale analysis of historic shoreline change, 3) development of spatially-explicit conceptual models, 4) identification of diverse and representative reference sites, and 5) the evaluation of site-appropriate restoration measures.